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ABSTRACT

A study compared Penn State University's computer-aided Reticence Program, for shy/reticent public speaking students, with two existing approaches: (1) oral interpretation and (2) the lectures, demonstrations, and coached rehearsals of more traditional reticence instruction. Thirty reticent students, including 9 males and 21 females, were placed in either a control class, which received the usual vocal delivery instruction of a reticence class, an oral interpretation class, or a third class using computer-aided instruction (CAI). Students in the oral interpretation class showed the greatest increase in fluency, while the control group showed the most improvement in intensity modulation. In all three classes, males had a consistently higher degree of change than females. While the CAI class showed less increase in fluency than the oral interpretation class, they began the study with greater fluency and therefore needed less improvement. Results suggest that when establishing a reticence program, the beginning level of vocal skills, gender-related vocal differences and training requirements, instructor gender, and perception of vocal behavior all must be taken into account. Individualized training, lectures, rehearsals, and presentations all appear to help students improve vocal performance. (SG)

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Speech Modification Training for Reticent Speakers: A Comparison of Three Methods

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Good morning! At Penn State, we have a Reticence Program for shy/reticent public speaking students. This paper is about a CAI vocal training program for reticent students that we established. I will present the first part of the paper and Deborah will present the second part.

The object of this exploratory study was to compare the CAI training method to two types of existing training: Oral Interpretation and the training generally used in the Reticence courses, which includes lecture/demonstration on vocal delivery and coached rehearsals for 2 public presentations.

We asked 3 basic research questions about Class and Gender as to vocal performance:

(1) Did all 3 classes and 2 genders of reticent students exhibit similar performance before training in the vocal cues of fundamental frequency, fundamental frequency range, intensity modulation, and fluency? These cues are explained on your handout.

(2) What differences in these vocal cues resulted from the 3 training methods among the 3 classes and 2 genders? Specifically, which training method was effective in bringing reticent vocal performance nearer to that of nonreticents and for which gender?

(3) Did any of the classes or either gender exhibit a greater degree of change in any of the vocal cues, and in which direction was the change?

Thirty reticent students, 9 males and 21 females, and 10 from each of 3 classes served as subjects.

For the 3 classes, we used 3 different training methods:

(1) One class was the CONTROL CLASS, which received the usual instruction in vocal delivery given in the Reticence Program, including impressionistic discussion of delivery skills, minimal oral interpretation practice, and 1 public speech. Both presentations have mandatory rehearsals.

(2) The second class was given extra training and practice in ORAL INTERPRETATION by Mary Mino, an expert in the field. This training involved 3 meetings: 1 lecture and demonstration, and 2 rehearsals. She taught oral interpretation conventions, scoring of the text, and worked on vocal cues such as "pitch," range, rate, and pause. You can see her paper and ours for more details.

(3) The third class used the Computer-assisted Instruction (CAI) method. The equipment and programs used are discussed in our paper. In this training method, a teaching assistant met with each student for 8 45-minute sessions. The students were trained with graphs and data from the computer analysis of their recorded speech. Data on the 4 vocal cues on the handout was used to assess

students' progress in the vocal training.

In every session, students listened to their recordings and discussed both appropriate and inappropriate characteristics of their speech. The TA input into the computer a sample of the student's speech. Then, intonation and intensity contours were drawn on the screen and printed out. The student played the speech sample while looking at the contours. Students correlated their comments with the computer analysis results, and then re-recorded with the practiced vocal improvements. Through training, the students became familiar with interpreting and applying the computer-analyzed data to their specific vocal problems. Note that the method involved student-computer-instructor interaction, so it was not only computer-assisted instruction, although eventually we hope to use it without a full-time TA. Complete information about this method can be found in our paper.

Now, Deborah will continue with our analysis and results, and discuss our findings.

To determine whether training method affected vocal delivery skills, all subjects were taperecorded at the beginning and end of the semester, reading the Rainbow Passage (Fairbanks, 1960).

The first three sentences of the passage were

analyzed acoustically for all 30 reticent students. The speech samples were analyzed for the four vocal cues:

mean fundamental frequency (F0),

fundamental frequency range, intensity modulation, and fluency, which we found in a previous study to differentiate reticent and nonreticent speakers.

FLUENCY was analyzed with an automatic pause recognizer, which detected, measured, and compared silent pauses in the sample to speech time.

We statistically analyzed all vocal cues BEFORE TRAINING with a 2 x 2 Analysis of Variance, including the interaction term. Tukey multiple comparisons were calculated on statistically significant effects in order to describe the differences among the means.

Before training, FEMALES demonstrated a significantly

HIGHER F0 and WIDER F0 RANGE than males. Means are given on the handout. The FEMALES were also much MORE FLUENT than the males. In addition, we found that the CAI cLASS was significantly MORE FLUENT initially than the ORAL INTERPRETATION CLASS.

There were NO significant differences at all in INTENSITY MODULATION before training.

Next, we analyzed the CHANGE in vocal cues, that is, the POST-training values MINUS the PRE-training values, using the same 2 x 2 Analysis of Variance with the CHANGE IN VOCAL CUES as the RESPONSES. Results showed whether or not there was a different degree of change among the three CLASSES. Follow-up multiple comparisons then determined which CLASS changed the most, and in WHICH DIRECTION.

NO significant effect for F0 or F0 RANGE was found due to Gender, Class or Gender x Class.

However, there was a significant effect for FLUENCY between the CAI and ORAL INTERPRETATION CLASSES. The CAI CLASS showed NO significant difference in DEGREE OF CHANGE while the ORAL INTERPRETATION CLASS showed the GREATEST DEGREE OF CHANGE in FLUENCY, INCREASING FLUENCY more than the other classes.

In INTENSITY MODULATION, the CONTROL CLASS changed the MOST, showing a significantly GREATER CHANGE than the CAI CLASS. And MALES had a consistently HIGHER DEGREE OF CHANGE than the females across all 3 classes.

Several issues may have influenced the results of this study. First, we analyzed "read speech," which differs from conversational and presentational speech, particularly in terms of pause time or FLUENCY (Huggins, 1964). Therefore, POST-training evaluations of read speech may have unwittingly favored the ORAL INTERPRETATION method. It should be noted that the ORAL INTERPRETATION students exhibited PRE-training values that were significantly LOWER than the other classes, and while they IMPROVED the MOSt in FLUENCY, they NEEDED to improve more than the other classes.

After completing the study, we also learned that the instructor of the CONTROL CLASS emphasized vocal delivery more than is common in the Reticence Program. In an earlier study, we found that MALES tend to use INTENSITY MODULATION for expressiveness (while FEMALES use FREQUENCY). It is possible that the male instructor of the CONTROL CLASS may have inadvertently modeled INTENSITY MODULATION for "expressiveness" throughout the semester. Other potential variables affecting the study are discussed in the full-length version of our paper.

At first glance, the CAI method does not seem to be as effective as the other methods. However, BEFORE training, CAI students were significantly MORE FLUENT than the ORAL INTERPRETATION CLASS. It is not surprising, then, that the ORAL INTERPRETATION CLASS IMPROVED in

FLUENCY more than the CAI CLASS, which didn't need to improve.

In conclusion, there are many variables affecting the results of training: PRE-TRAINING LEVEL of vocal skills, GENDER-related vocal differences and TRAINING requirements, INSTRUCTOR GENDER and awareness of gender differences, and the fact that PERCEPTION of vocal behavior may not reflect objective values. These issues all need to be considered when establishing a training program.

The many issues involved in vocal training points to Individualized Training Programs, perhaps with CAI analysis and a skilled instructor to help the student practice vocal cues needing improvement. Additionally, awareness of delivery factors through LECTURES and TRAINING, and the chance to PRACTICE delivery during REHEARSALS and PRESENTATIONS also appear to help students improve, especially when they are with a class of similar speakers instead of being in a class where they seem different and feel inferior.